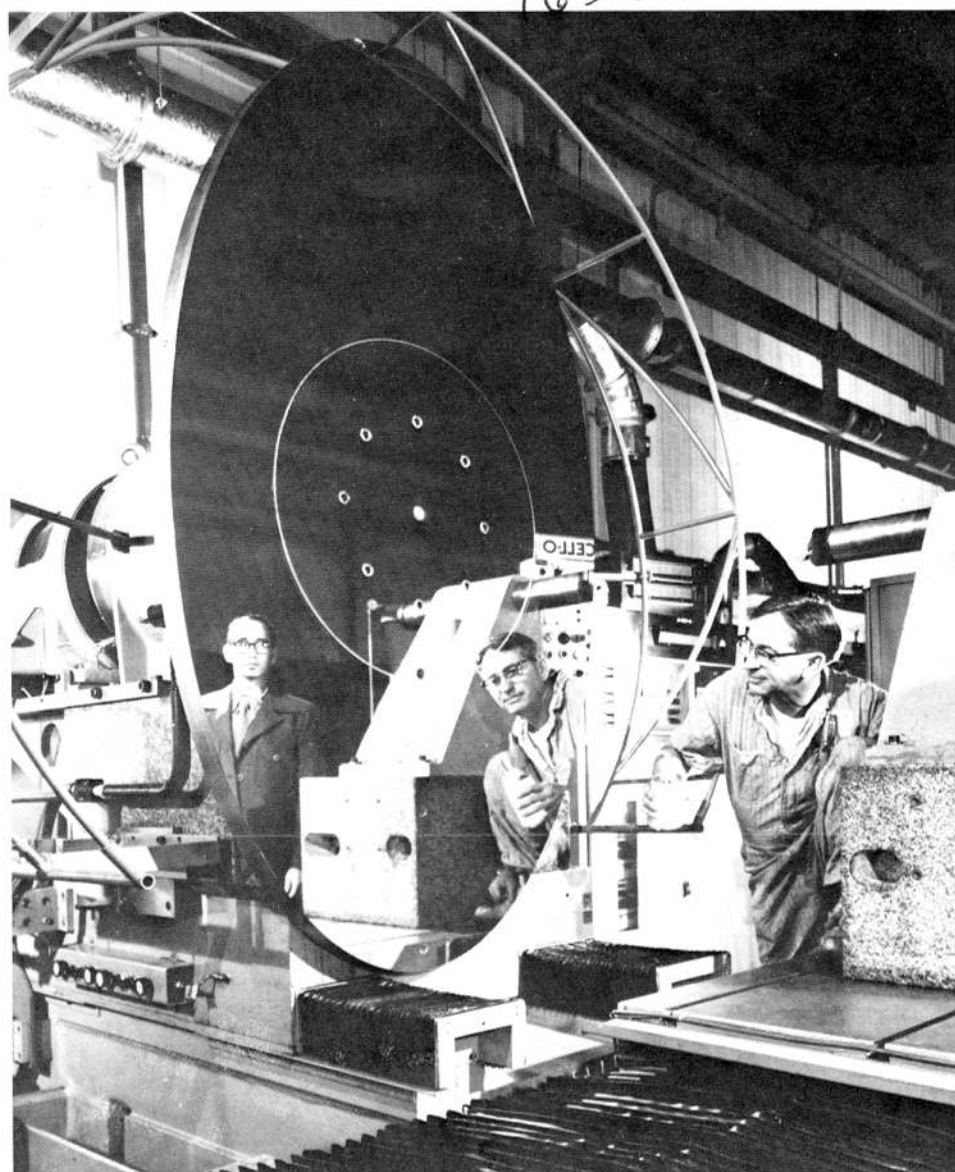


Nuclear Division News



A Newspaper for Employees of the Nuclear Division, Union Carbide Corporation

Vol. 7, No. 10/May 13, 1976



GIANT MIRROR — Development engineer Howard L. Gerth, left, and machinist Fred N. McLain display the reflection of this experimental 80-inch mirror recently completed in a Y-12 Plant shop.

Large demonstration mirror fabricated at Y-12 Plant

The Oak Ridge Y-12 Plant is developing a method of finishing metal mirrors up to 80 inches in diameter with highly reflective surfaces for possible use in the nation's laser fusion research program.

A turning machine is being modified by the Plant's machine tool engineers to reduce vibrations and to improve control of tool path accuracy. The modifications include the reworking of the spindle drive train, mounting the slides on air bearings, installing air cushions underneath the machine, controlling machine temperature and reducing the control system resolution. The two-axis, numerically controlled machine is equipped with laser interferometers to permit precision tool positioning and has a diamond knife cutting tool.

The modifications are expected to make it possible to attain surface

finishes within a peak-to-valley accuracy of two microinches (a microinch is one-millionth of an inch) and a tool path accuracy of 40 microinches. These accuracies should make possible the finishing of metal mirrors to a reflectivity of better than 99 percent.

To date, the Y-12 Plant has made metal mirrors up to 26 inches in size for use in laser fusion experiments at Los Alamos Scientific Laboratory.

STOCK DIVIDEND DECLARED

The board of directors of Union Carbide has declared its 236th consecutive quarterly dividend. The amount is 62.5¢, payable June 1, to stockholders of record at the close of business on May 7. This is the same dividend declared the first quarter of 1976.

U.S. Bond campaign set in four facilities

A campaign opens next week in the four Nuclear Division installations giving employees the perfect answer for that proverbial "rainy day."

More than half of all division employees are already in the U.S. Savings Bond Payroll Savings Plan, putting money away in investments that make gold, silver and other glamorous collections pale when compared to the stability of bonds.

Heading the drive is F. V. "Joe" Tilson, Y-12, who opened the campaign with a meeting among plant officials recently. He also saw a Y-12 pipefitter, Offie Trull, plunge into bond savings with an initial cash purchase of \$1,500 in U.S. Savings Bonds. Other installation representatives include Sam Flanders, Oak Ridge Gaseous Diffusion Plant; Art Edwards, Paducah Gaseous Diffusion Plant; Robert Sherlin, Oak Ridge National Laboratory; and Dave Jennings, Y-12 Plant.

'A means to save'

Campaign directors in all divisions in the four installations will be distributing literature this week, emphasizing the many advantages of payroll savings. "We are not asking for anything, for a change," Tilson stated. "We are merely providing the means for employees to participate in a painless method of savings. Many people believe the only way they can save money is to never see it. Payroll savings provide that magic formula

for slipping money into a fund where it will be saved."

Many employees in the Nuclear Division are purchasing U.S. Savings Bonds through the Personal Investment Account portion of the Savings Plan.

Employees may sign up for as little as 50 cents per week, or \$2 per month, purchasing any denomination desired as soon as enough money is accumulated for that particular figure.

Special bonds

Special Bicentennial Bonds are being issued by the U.S. Treasury Department, marking the country's first 200 years. Who would have financed a scraggly band of revolutionists against the crowned heads of Europe? Americans did just that, and through this financial trust in the government have been enhancing that trust ever since, state Treasury Department officials.

Special tax advantages are emphasized during the campaign, along with the indestructible nature of Bonds.

All in all, U.S. Savings Bonds are quite an investment, any way you look at it.

next issue . . .

The next issue will be dated May 27. The deadline is May 19.



BELIEVER IN BONDS — Offie Trull, a Y-12 pipefitter, really began thinking about how good an investment U.S. Savings Bonds are recently. Just prior to the opening of the Payroll Savings Drive, Trull bought \$1,500 in Bonds (in face value.) He is shown with his savings, as Clarence R. Eichelberger, a supervisor in Research Services, right, looks on. Dave A. Jennings, who spearheads the Y-12 drive, is at left.

Open heart surgery increases area Blood needs

Al Burris, Central Employment. Mel Koons, executive staff. Bob Pegel and "Shorty" Hallwas, Oak Ridge Gaseous Diffusion Plant. What do all these men have in common? Along with others, these Nuclear Division employees have recently undergone open heart surgery.

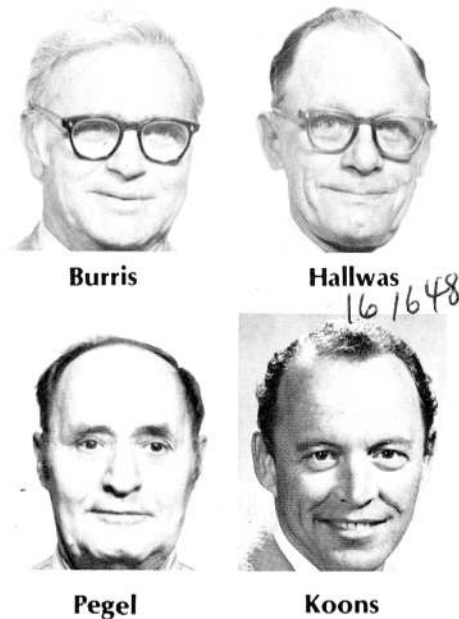
And through Anderson County's participation in the American Red Cross Blood Program, the needed blood was available for these operations, whether the surgery was performed in Nashville or Birmingham. Anderson Countians have total coverage, regardless of where the blood is required. (Other Nuclear Division employees may give when the Bloodmobile visits this month, entitling them to total family coverage no matter where they live.)

The Bloodmobile returns to the Oak Ridge Armory May 26 and 27 for the final visit in the current fiscal year. Next year's quota for the county has been increased due to the advances made in surgery like open heart. Open heart surgery requires a standby of at least 10 units of whole blood.

May 26th's hours will be from 3 until 9 p.m. ... May 27th's from noon until 6 p.m.

No substitute

Blood is the sustainer of life ... a fluid for which there is no substitute. To need it is to need a second chance to live. Each year, one out of 80 people in this country requires



additional blood to live. Having blood instantly is the whole secret. Organ transplants, as well as the advances in heart surgery, require more and more blood. Approximately one percent of the population is now furnishing blood for the other 99 percent. And the American Red Cross collects more than half the nation's blood. We are told by government authorities that the nation is moving toward a 100 percent voluntary blood program, where commercialism (the buying and selling of blood), membership fees, etc. will be entirely eliminated. And this is as it should be.

The Red Cross has always maintained that anyone who needs blood should have it.

Other county coverage

Remember, whether you live in Anderson County or not, your family can be covered for blood needs by a simple, quick donation. Giving blood is quick and relatively painless. After a brief interview and tests of such things as weight, temperature, pulse rate and blood pressure, one pint is taken when the donor is in a comfortable, reclining position. Immediately, fluid in the body's tissues starts entering the blood stream to replace the blood. The body's production of red blood cells increases, and the blood volume is restored within hours, the red cell volume in a few weeks.

The Red Cross Blood Program is a totally volunteer one and the risk to

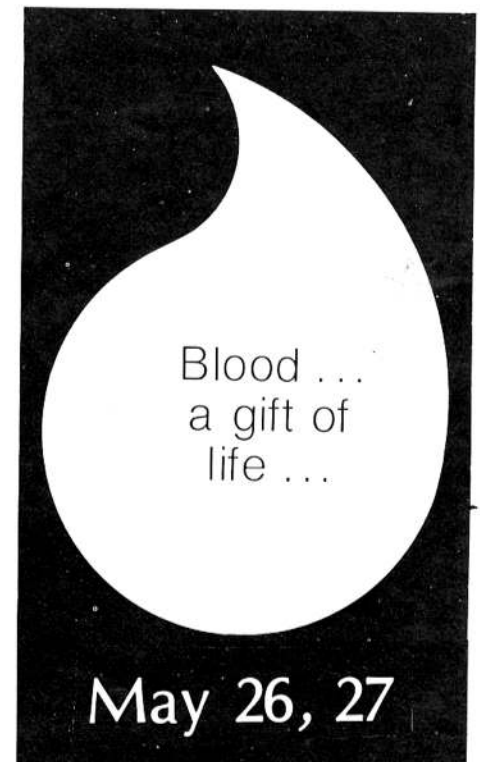
patients being transfused is far less when the blood is willingly shared rather than sold for a profit. Red Cross blood is provided to participating hospitals at less than cost. (And a credit system is often negotiated with hospitals outside the program.)

Soon in Paducah

Join the one percent who give blood. Be at the Armory on the Turnpike the last Wednesday or Thursday of May. See how good it makes you feel.

Bloodmobile visits will soon be scheduled in the Paducah area, and details will follow on how Kentuckians can also participate in this worthwhile endeavor.

Employment's Burris, himself a more-than-one-gallon donor, relates how comfortable it was to know that blood was available to him when he needed it. "I don't know if I will be able to give again," he states, "But I'll be there one day when the doctors say I can give again."



calendar of events

TECHNICAL

May 14

Health Physics Division Seminar: "Electrons in Fluids," N. R. Kestner, Louisiana State University. Analytical Chemistry Conference Room, Building 4500S, 1:30 p.m.

Metals and Ceramics Division Seminar: "Local Order and Its Influence on Ionic Conduction in Solid Electrolytes," T. Hibma, Brown Boveri Research Center, Switzerland. F62 Conference Room, Building 4500S, 10 a.m.

May 15

Biology Distinguished Lecturer Seminar: "The Structure of Water: Biological Implications," W. Kauzmann, Princeton University. Large Conference Room, Building 9207, 3 p.m.

May 18

University of Tennessee, Department of Chemistry General Seminar Series: (Title to be announced): Evan Wyn Jones, University of Salford, United Kingdom. Buehler Hall 414 UT Campus, 4 p.m.

May 19

Cancer Research Seminar: (Title to be announced): R. K. Boutwell, McArdle Laboratory for Cancer Research, University of Wisconsin. Tower I Conference Room, Building 9207, 12:15 p.m.

May 25

University of Tennessee, Department of Chemistry General Seminar Series: (Title to be announced): J. K. Stille, University of Iowa. Buehler Hall 414, UT Campus, 4 p.m.

COMMUNITY

May 14-15

Civic Ballet Association presents: "Festival of American Dance." Participating companies: Civic Ballet Association, host; Contemporary Dance Ensemble; Ballet Suzanne; and Tennessee Mountain Cloggers. Oak Ridge High School Auditorium, 8:15 p.m. Admission: adults \$3; students \$1.50.

May 14-16

Oak Ridge Community Playhouse presents: "Loot," Playhouse, 8:20 p.m. Free to Playhouse members; \$1.50 to non-members.

nuclear division news



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NUCLEAR DIVISION

—Member—

INTERNATIONAL ASSOCIATION OF
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ORGDP SAFETY AWARDS — Oak Ridge Gaseous Diffusion Plant employees happily receive their 1975 safety awards for outstanding safety records set last year. The plant enjoyed one of the best years it has ever had

as far as disabling injuries were concerned. "The real reward for this accomplishment," according to plant officials, "is a safe place to work." Nonetheless, employees generally gave favorable reviews to all the handsome items received.

Promoted in Employee Relations



Yvonne Lovely

Yvonne Lovely, Employee Relations Division at Oak Ridge National Laboratory, has been promoted to employee relations representative effective May 1.

In her new position she will report to Dan Robbins, director of the Office of Professional and University Relations. Her responsibilities will include the summer technical employment programs; the MIT Practice School; the Oak Ridge Science Semester program, conducted for the Great Lakes Colleges Association and the Southern College University Union; and several programs conducted in cooperation with Oak Ridge Associated Universities.

In addition, she will have primary responsibility in the area of noncitizen employees and guests, and in the administration of a faculty visitor apartment program now being set up.

Miss Lovely joined the ORNL staff in 1950 in the School of Reactor Technology (ORSORT). In 1954 she became secretary to R. W. Johnson, who at that time was with the former Director's Division in the areas of scientific and technical personnel and university relations.

From 1965 until 1973 she was secretary to Lewis Nelson in the same area. Most recently she has been

associated with the office of special services in the Employee Relations Division.

She became a Certified Professional Secretary in 1955; in 1962 she received a B.S. degree in business administration from the University of Tennessee.

Russ Smith named material specialist

166770



R.A. Smith

Russell A. Smith has been named a material specialist in the Materials and Services Division in the Y-12 Plant.

A native of Lynn, Mass., he has been in Y-12 more than seven years. Prior to joining Union Carbide, he was with Valley Pontiac Company.

Mrs. Smith is the former Jeanie White, and they live on Wheatland Drive, Knoxville. They have a son, Rusty.

New hours for ORNL cashier

The Cashier's Office at Oak Ridge National Laboratory will change its hours effective Tuesday, June 1. As of that date, the office will be open from 8 until 10 a.m. and again from 12 noon until 4:30 p.m. daily.

The ORNL Cashier's Office is located at J-233, Building 4500N.

Family Day plans ready

Participating divisions at Oak Ridge National Laboratory are putting out their welcome mats for Family Day visitors on Saturday, May 22, from 10 a.m. to 5 p.m.

All Nuclear Division employees and their families are invited to tour the ORNL facilities at both the X-10 and Y-12 areas. Family Day will also be open to all ERDA and other contractor employees. To gain admission to the plant areas, employees must display their authorized badges and register all members of their families. Employees will be responsible for escorting their own visitors.

Children's exhibits planned

Children are especially invited to attend Family Day, since many of the exhibits and displays will be geared toward them. The Analytical Chemistry Division, for instance, is featuring "Fun with Chemistry." Here visitors will see a frozen "mercury hammer," chemical gardens, a smoking machine and experiments using liquid nitrogen.

Other ORNL exhibits will include a glass blowing demonstration, mobile displays of various energy sources and the "riverboat" reactor — the Oak Ridge Research Reactor (ORR).

Computer games

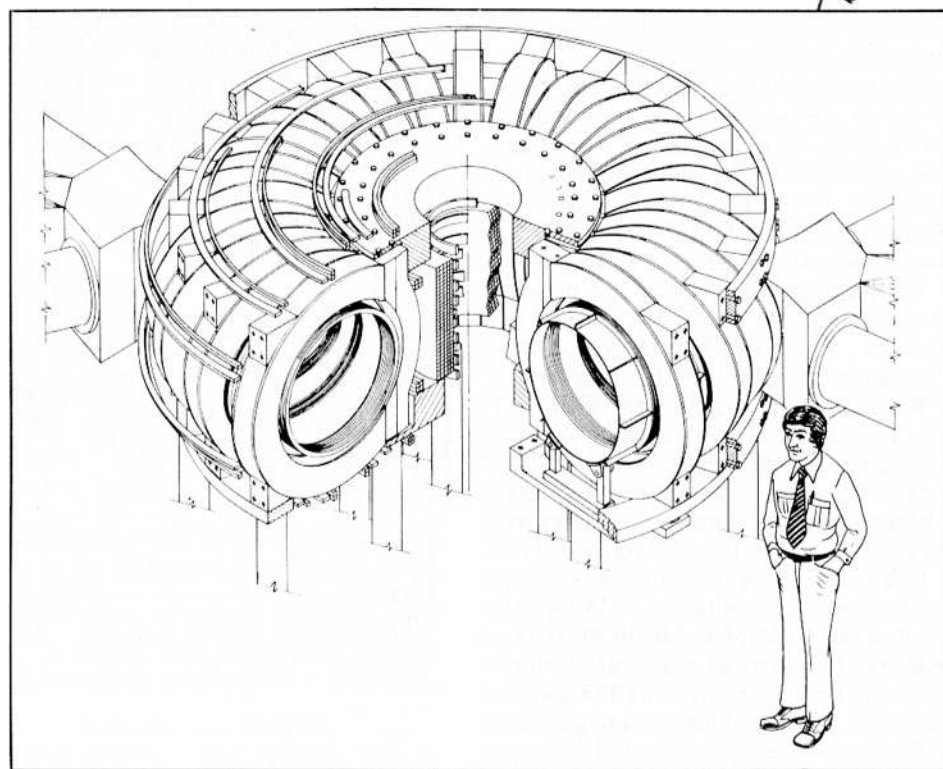
Some special attractions at the ORNL facilities at the Y-12 area are: ORMAK, a thermonuclear fusion research experiment; the Fuel Failure Mockup (FFM) facility, which tests the effects of loss of cooling flow in the Liquid Metal Fast Breeder Reactor (LMFBR); and computer games in the Reactor Division office buildings.

Parents should remember that no child care facilities are available at either plant.

Maps marked with the bus tour route will be provided at the guard gates. Visitor parking will be in the East and West portals at ORNL, and the Biology Division lot and East Portal at Y-12.

Experimental fusion device, ORMAK Upgrade, planned

163034



ORMAK UPGRADE — This is an artist's concept of the ORMAK Upgrade, recently approved for construction at Oak Ridge National Laboratory for use in controlled thermonuclear fusion experiments. The new device will replace the present ORMAK which completes its experimental program next year.

A new experimental machine for fusion research will be built over the next three years at the Oak Ridge National Laboratory.

The new experimental device is expected to play an important role in the long-term program to use fusion to generate electricity. It will have twice the plasma current and six times the injection power of ORMAK, the fusion machine presently at ORNL.

ORMAK Upgrade will be designed, constructed, and tested over a three-year period and will cost about \$7.3 million. Assembly is scheduled to begin in July, 1977, with completion expected in late 1978.

Experimental programs using the present ORMAK machine should be completed by April, 1977, after which the ORMAK will be disassembled and some of its components used in the new machine.

Recent experiments conducted with the ORMAK have demonstrated that plasma temperatures in tokamak systems can be increased substantially by increasing the power of injection heating systems. The temperatures produced through this method are in substantial agreement with theoretical predictions.

Temperatures of 15,000,000 degrees, the highest temperature ever achieved in the United States in a tokamak (doughnut-shaped) fusion device, have been obtained in the ORMAK through the injection of 350 kilowatts of particle beam power.

The ORMAK Upgrade will have an injection power capability of 2,000 kilowatts. If experiments work as expected, plasma temperature in the machine should approach the 60,000,000 degrees believed necessary for ignition of a fusion reaction.

The fusion program at Oak Ridge is under the direction of John F. Clarke. The ORMAK experiments are directed by L.A. Berry.

The national program to develop power from fusion is directed by the Energy Research and Development Administration and is carried out by laboratories throughout the country.

To receive TIC honor Saturday



Holoway

Clayton F. Holoway, Health Physics Division at Oak Ridge National Laboratory, will be awarded a Tennessee Institute of Chemists Honor Scroll for 1976 at the Institute's annual meeting Saturday in Knoxville.

The Scroll will be presented in recognition of "his contributions in teaching, in industrial and governmental research, and in leading the Tennessee Institute."

Holoway was president of the Institute from 1969 until 1971. The May issue of that organization's publication, *TIC Newsletter*, notes that "under Mr. Holoway, the Tennessee Institute was reorganized into its present form, and his continued interest at the state and national level has been a major factor in the growth of the Institute."

Holoway joined ORNL in 1964 after holding teaching positions at the State University of New York College for Teachers at Albany; Springfield College, Mass.; George Williams College in Chicago; Michigan College of Mining and Technology; and West Liberty State College, West Virginia. He has also worked with Dow Chemical Company and Shell Oil Company's development division.

A native of Massachusetts, he holds B.S. and M.S. degrees in chemistry from Tufts University there.

Hopkins, Penry, Mrs. Green 'year's best'

Three Paducah Gaseous Diffusion Plant employees were honored by two local professional womens' organizations last month.

Clyde Hopkins, manager of the Paducah Gaseous Diffusion Plant, received the Boss of the Year award at the ninth annual Executives' Night Banquet held by the Paducah-Kentucky Lake Chapter of the National Secretaries Association.

Betty M. Green, CPS, a Nuclear Division secretary for 17 years was named Paducah-Kentucky Lake Chapter's Secretary of the Year.

Bill D. Penry, head of the PGDP's Maintenance Engineering Department, was named 1976-77 Boss of the Year by the Paducah Duchess Chapter of the American Business Women's Association (ABWA).

Hopkins is a native of Brownsville, Tenn., and a graduate of Western Kentucky University. He joined the Nuclear Division at the Oak Ridge Gaseous Diffusion Plant in 1952, and became PGDP's plant manager in 1972.

He is president-elect of the Paducah Chamber of Commerce. He and his wife, Ada, have two daughters and live at 3555 Savoy Circle, Paducah.

Betty Green is a graduate of Murray High School and will receive her associate degree in business management from Paducah Community College this semester. She is secretary to John K. Phipps, head of PGDP's Design Engineering Department.

Mrs. Green is a charter member of the Paducah-Kentucky Lake Chapter and will serve as its president during 1976-77. She and her husband, W.T. Green, live at 5810 Finley Court, Paducah, and have a son.

Approximately 135 secretaries and their bosses and guests attended the banquet.

Frances Hamilton, secretary to Penry, nominated him for his award, which was presented at the local ABWA Chapter's 14th Annual Boss Night Banquet.

Penry, a graduate of Texas A & M College, joined the Nuclear Division in 1951. He organized PGDP's Functional Industrial Training Program, and has served as chairman of the plant's United Appeal Campaign.

He is currently serving on the Regional Manpower Task Force of the Purchase Area Development District and is a board member of the Cooperative Educational Association of Kentucky.



SHOW NSA AWARDS — Clyde Hopkins was named Boss of the Year and Betty M. Green Secretary of the Year at the Paducah-Kentucky Lake Chapter, NSA, Executives' Night Banquet. From left, above, are John K. Phipps, PGDP Design Engineering superintendent, Mrs. Green's boss; Mrs. Green; Hopkins; and Hopkins' secretary, Betty Lester. Mrs. Lester is president of the Paducah-Kentucky Lake Chapter.



BOSS NIGHT HONOREE — Bill Penry, recipient of the ABWA Boss of the Year award, displays his trophy. With him are his secretary, Frances Hamilton (center); and Jo Grisham, president of the Paducah Duchess Chapter of the ABWA.

Boss Night is an annual ABWA event, established to honor employers of members and to familiarize them with the ABWA, an educational association dedicated to promoting the professional, educational, cultural and social advancement of business women.

Earns Fellow status in American Physical Society

Robert M. Nicklow, Solid State Division at Oak Ridge National Laboratory, has been elected a Fellow of the American Physical Society.

Nicklow, a senior member of Solid State's neutron spectrometry group, joined the ORNL staff in 1963 after receiving his Ph.D. degree in physics from the Georgia Institute of Technology. He had previously received his B.S. and M.S. degrees in physics from Georgia Tech.

He is also a member of the American Crystallographic Association, and in 1968 received the Pittsburgh Diffraction Society's Sidhu Award, given annually to a young scientist for an outstanding contribution in the field of diffraction. He is the author or co-author of about 50 scientific publications and has given a number of invited talks on his research at both national and international scientific conferences.

Nicklow and his wife, Marilyn, live with their three daughters at 104 Mohawk Road, Oak Ridge.

Fellowship in the American Physical Society is conferred on members who have made contributions to the advancement of physics by independent original research or who have rendered a special service to the field of physics.



Nicklow

division retirees



Fiveash



Rogers

Two long-time Oak Ridge Gaseous Diffusion Plant employees retired at the end of April.

S. Wayne Fiveash, Engineering, retired after more than 25 years with Union Carbide. He lives at 110 Broadway, Oak Ridge.

Ernest L. Rogers, Barrier Operations, had completed more than 30 years company service. He lives at Route 1, Lake City.

EFFICIENCY IN OVEN USE

When possible, use your oven rather than the burners. Since the oven is insulated, it makes better use of its heat and costs less for cooking. Also, try to cook several foods at once in the oven by choosing foods that cook at nearly the same temperature. This way, you can cook two or three things for little more than the cost of one.

Auxier elected to Radiation Council

John Auxier, director of the Health Physics Division, Oak Ridge National Laboratory, was one of seven persons recently elected to the National Council on Radiation Protection and Measurements (NCRP).

The Council, successor to the National Committee on Radiation Protection and Measurements, was chartered by Congress in 1964 as a nonprofit corporation to collect, analyze, and disseminate scientific information and recommendations about radiation measurements and protection against radiation.

Auxier has been director of the Health Physics Division since 1972. He is active in a number of professional organizations and was recently named president-elect of the Health Physics Society.

Portal 2 or 4, straight day. George Eckerd, plant phone 3-3031.

ORNL

RIDERS for Commuter Van Pool from East Village/New York Avenue area, East or West Portals, 8 to 4:30 shift. Harry McNabb, plant phone 3-6971, home phone 483-9457.

Y-12 PLANT

VAN POOL MEMBERS wanted from Middlebrook Pike, Francis Road section, via Walker Springs and Cedar Bluff Road, any portal, straight day. Steve Shipley, plant phone 3-7776, home phone Knoxville 693-0379.



WANTED

ORGDP

CAR POOL or **RIDE** from Camelot subdivision, Karns, to Portal 5, straight day. Tom Lemons, plant phone 3-9620, home phone Knoxville 947-8959.

TWO CAR POOL members from Norris area, to Portal 2, 4 or 7, straight day. Gordon Lindner, plant phone 3-3543, home phone Norris 494-7954.

Someone to join four-man **CAR POOL** from West Hills, Knoxville, to

New retrieval system has answers on current events

1363-76



INFORMATION BANK ON-LINE — The New York Times (NYT) Information Bank was recently installed at the Central Research Library at Oak Ridge National Laboratory. Deborah Meeks (right), customer service representative for the Washington, D.C., branch of the NYT Information Bank, shows Candice Strickler, a librarian, and Ray Dickison, director of the ORNL Library System, how to operate the information bank.

Do you need some up-to-date information on a current events topic in double-quick time? For example:

Which members of Congress are speaking out against nuclear power? What does Ralph Nader think of nuclear safeguards at Oak Ridge National Laboratory? What is the national news summary for today?

These questions can be answered in minutes by the New York Times (NYT) Information Bank, a newly-installed retrieval system at the ORNL Central Research Library.

Library personnel, trained to operate the computerized information bank, can provide Nuclear Division employees with data for use in technical papers, speeches and management decisions. Computer time (less than \$1 per minute) will be charged to the division requesting information.

The NYT Information Bank should not be confused with RECON. RECON is a computerized retrieval system containing ERDA nuclear science abstracts, while the new Information Bank deals with current events and other general information.

The NYT Information Bank data base is broken down into four major categories: 23 percent from special-interest journals and magazines; over 50 percent from U.S. newspapers; 13 percent from overseas publications; and about 10 percent from U.S. general interest magazines.

Customer service representatives from the NYT Information Bank have held two day-long training sessions at ORNL. One was to teach Library personnel how to operate the information bank. The other session, held a month later, answered any questions concerning operating techniques.

This service is located at the ORNL Central Research Library and is available to all Nuclear Division employees. For additional information concerning the NYT Information Bank, call extension 3-0208.

New technique will better performance of semiconductors

A technique for significantly improving the performance and versatility of devices made from one of the most widely used semiconductor materials in the electronics industry, silicon, was described in Oak Ridge recently by representatives from Oak Ridge National Laboratory, universities, and industrial firms.

The technique, known as "neutron transmutation doping," involves exposing the semiconductor to neutrons, sub-atomic particles produced in nuclear fission reactors. "Doping" refers to the insertion of small quantities of another chemical element into the atomic or molecular structure of the semiconducting material in order to produce a desired change in its electronic properties.

Applications of the neutron transmutation doped silicon, already being tested on a limited basis, include the fabrication of such devices as radiation detectors, high-voltage rectifiers, and power switching equipment. In the case of power devices, it has been shown that neutron transmutation doped silicon devices can operate at much higher voltages.

The Oak Ridge conference, organized by Richard F. Wood and John W. Cleland, included representatives of semiconductor industries in the U.S., Denmark, France, Germany, Italy, and Japan. It was sponsored by the ORNL Solid State Division, with cooperation from the Technology Utilization/Commercialization Program of Union Carbide's Nuclear Division.

patents granted

To Sebastian B. Lupica, ORNL, for "Method of Producing Thin Cellulose Nitrate Film."

question box

Dental insurance

If you have questions on company policy, write the Editor, Nuclear Division News (or telephone your question in, either to the Editor, or to your plant contact). Space limitations may require some editing, but pertinent subject matter will not be omitted. Your name will not be used, and you will be given a personal answer if you so desire.

Standard cafeteria costs?

QUESTION: What costs are included to establish the prices in the ORNL and other plant cafeterias? Shouldn't only the cost of the food and the labor to prepare and serve the food be included?

ANSWER: The cost of food and labor are the overriding factors in establishing cafeteria prices. For some time now receipts have not fully covered the cost of these two items.

Pension plan funding

QUESTION: In answer to a previous question, the Question Box told us that the Pension Plans in the Nuclear Division and in UCC-Private Sector were funded in different ways. Are there other differences between the Plans?

ANSWER: The Plans are funded separately. When changes are made in the Plan from time to time by Union Carbide (most recently in January 1976), ERDA's approval also is required. Insofar as benefits are concerned, the Plans are identical.

Identifying signs at ORGDP?

QUESTION: Why doesn't Union Carbide install signs near K-25 directing truckers to the shipping and receiving department? On several occasions I have stopped and helped area truckers find their way.

ANSWER: There are five large signs with illuminated backgrounds and arrows indicating directions to the Traffic, Receiving, and Shipping entrance at Portal 5. Headed east, these signs are located at: (1) Highway 58 and Powerhouse Road, (2) Highway 58 and Blair Road. Headed west, they are located at: (3) Highway 58 and Blair Road, (4) Blair Road and Portal 6, and (5) Blair Road at Portal 5.

The ORGDP management agrees, however, that two additional signs are needed at: (1) Main Plant entrance, and (2) Junction of Highways 58 and 95. These signs will be erected in the near future.

Job description

QUESTION: About a year ago I filled out a detailed job description for my supervisor. To date I have been told nothing of its disposition or effectiveness. Will I ever be?

ANSWER: Without knowing why you were asked to complete a job description, it is not possible to correctly answer your question. If you are a monthly salaried employee, the description was most likely requested in connection with the recently completed exempt evaluation program. In any event, you should contact your supervisor for more specific information.

Savings Plan-Personal Investment Account

Recent unit values:

	Fixed Income Fund	UCC Stock	Equity Investment Fund
August 73	10.0000	34.7688	10.0000
December 73	10.2444	31.8170	9.3602
December 74	11.0438	40.3009	6.4354
November 75	11.9089	58.2039	7.9946
December 75	11.9880	58.7886	7.8231
February 76	12.1619	67.6530	8.3161
March 76	12.2480	73.8691	8.6006

Note: Fixed Income Fund unit values reflect interest additions to achieve the guaranteed effective annual interest rate of 8.55% for 1975 and 8.85% for 1976. Union Carbide stock values are the average cost of stock purchases during the month plus brokerage charges. Equity Investment Fund unit values represent the month-end market value of securities held by the Fund. Dividing the total value by the number of units in the fund establishes the month's unit value — and the price at which new units are added that month.

recreationotes

ORNL golf

Grover Cain zeroed in on the Wallace Hills course with a hot 69 card to take ORNL's first tournament of the year. Bill Martin closed in on second place with a 73. Handicap lows went to Raymond Tucker Jr., 74; and Monty Montgomery, 79.

In the second division it was Tom Akin, 78; Jim Compton, 80. Handicap honors went to John Rowell Jr., and Grover Moore, each with 82.

Division three belongs to Jim Womac, 83; and Joe Scarborough, 85. In handicap scoring it was Freeman Parrott, 83; and Hubert Caudill, 85.

Y-12 golf

John Baker played a 75 card to take the YMCA Center tournament for Y-12ers. Ken Cook, Bill Butturini and Dan Rowan all scored 76 to tie for second place. Handicap honors were gleaned by George Cantrell, 78; and John Griffin, 80.

Division two went to Bill Briscoe, 79; Russ Dagley, 80. Handicap scores were kept by K. W. Hill, 82; and Conrad Strike, 81.

Division three went to Dick Loveless, 86; and Bob Dearstone, 88. Harry Spires scored low in handicap count with 89; Avery Kendig, 90.

Sweet Adelines plan weekend competition

Oak Ridge's Atomic City Chapter will host the Region Four Sweet Adelines convention, and competition "America 200," which will be held this weekend at the James White Civic Auditorium in Knoxville. Competition will begin Friday evening, with an entertainment performance set for 8 p.m. Saturday.

Many of the Atomic City Chapter members are Nuclear Division employees or wives of employees.

Tickets will be available at the Auditorium box office one hour prior to each event, or from Chapter members.

Y-12 bowling

The Rebels, consisting of Jack Spears, L. E. Sikes, Walt Goodwin, Tom Hillard and Ernest Ely took the Classic League crown, as the Splinters placed second in the league race.

The Sunflowers downed the Rounders in the C League wind-down. The Sunflowers boast Edd Sise, Bob Carmack, Bill Stephens, Bill Sise and Charlie Baxter. The big C boys hung up their hats, to bowl again next year in new alleys down the road.

ORNL bowling

The final standings in the Carbide Mixed Family League saw the Possibilities with a three point lead over the Oops ... with a roll-off set last week. George Brandon put a 545 scratch series up there in late April; Edith Duckworth rolled a 530.

The C League lacks only a roll-off to determine league champs as the Remkeys will fight it out with the Alley Rads.

The ORNL Ladies League puts the Mousechasers up there still, six points ahead of the Pickups.

ORGDP golf

Frank Copeland one-under-parred the course at Whittles to take the ORGDP first full-plant golf tournament. Bennie Crass parred to take second place in the first division. Handicap winners were J. A. Duff, with a 75; and G. W. Green, with a 77.

Division two went to J. D. Kirkpatrick, 78; and D. F. Bennet, who tied with Jim Winters, each with 80. Handicap honors went to Ron Summers, 81 and C. H. McIntyre, 82.

In the third division, it was Eddie Acuff, 80; R. E. Lampton and Sterling Ryder, each with 85.

Handicap lows went to K. M. Sinsbor, 89; and Paul Maples, 87.

Skeet league

Phil Hayes, ORNL, led April Skeet firers, scoring a 49.776 tally. Carl Brewster, Y-12, followed with a 48.988; and Vernon Raaen, ORNL, took a 48.486 score.

ORGDP bowling

The Tuesday League went to the All Stars, Millard Gibson, Harold Gunter, Tommy Jones, Dan Kessell, Guinn Marrow, Lee Owens and John Peer. Martin Ginsburg placed high in singles; Paul Clabough placed high in series rolling. Harold Gunter took the season's high for individual match percentage rolling.

The Wednesday League is still at it, with the Planners a game and a half out, away from the Sues Sooners. Stan Finch, Sooners, rolled high recently with a 241 game, 635 series.

The Ladies League saw Mary Foley roll a scratch game of 226, series of 565 ... or a 634 handicap total! The Uptowners are way beyond reach in league runnings.

Canoe courses offered

The Carbide Canoe Club, in cooperation with the East Tennessee White Water Club, is offering a canoe course in basic canoe-handling. The basic skills will be taught June 1, 2 and 3 at 6 p.m. at the canoe launch at the Clark Center Recreation Park. Additional information may be obtained from Dick Gammage, Oak Ridge telephone 483-4141, or Doug Colclasure, 483-1267.

PGDP's Hackney named to MSU Hall of Fame



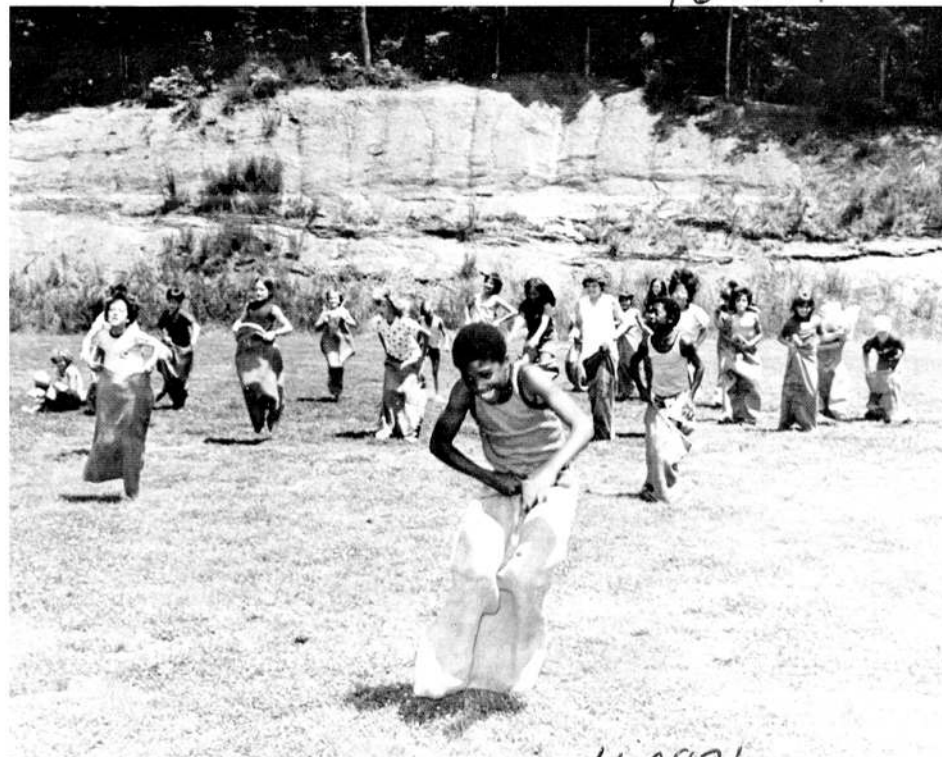
Hackney

Murray State University has named John L. Hackney to its "Football Hall of Fame." Hackney, an assistant general supervisor in the Maintenance Division at the Paducah Gaseous Diffusion Plant, attended MSU on an athletic scholarship and played on what many consider some of the best teams ever produced at Murray.

In his senior year John played in the Tangerine Bowl against Sul-Ross University and was lined up against the late Dan Blocker, who deserted a teaching and football career to become television's "Hoss Cartwright."

"Big John" devotes most of his prowess in athletics these days to punishing the golf balls on Paducah's greens.

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ENGINEERING PICNIC — "A Bicentennial Holiday Picnic: 1776-1976" is the theme of the Nuclear Division's annual Engineering Picnic, scheduled this year for Saturday, June 5, from 1 until 8 p.m. at Clark Center Recreation Park in Oak Ridge. There will be plenty of food, fun, games and entertainment, as the above pictures from last year's picnic show.

Tee-Off Time Application for May 22

(Check Appropriate Plant)

- ☐ ORGDP — Wallace Hills
- ☐ Y-12 — Dead Horse Lake
- ☐ ORNL — Whittle Springs



LEADER

Phone

Bldg.

Time Preferred

COMPLETE AND RETURN TO YOUR RECREATION OFFICE

Entries must be received prior to drawing on May 19, 2 p.m.

ORGDP — Building K-1001 — C Wing — MS 122

Y-12 — Building 9711-5 ORNL — Building 2518

Tee-off times for all tournaments will be drawn on Wednesdays prior to each Saturday's tournament. Golfers are responsible for reserving their own carts by contacting the pro shop following drawing for tee-off times.



Influenza: the last unconquered plague

by T. A. Lincoln, M.D.

(Editor's Note: Dr. Lincoln alternates his regular column with "The Medicine Chest," where he answers questions from employees concerning health in general. Questions are handled in strict confidence, as they are handled in our Question Box. Just address your question to "Medicine Chest," NUCLEAR DIVISION NEWS, Building 9704-2, Stop 20, Y-12, or call the news editor in your plant, and give him or her your question on the telephone.)

PART I

On March 25 President Ford sent a special message to Congress, requesting \$135 million to "insure the production of sufficient vaccine to inoculate every man, woman and child in the United States against influenza." He said, "The nation faces a serious potential public health threat this winter from a strain of virus known as swine influenza."

Critics have accused the President of using a public health anxiety for political purposes. An important part of this anxiety is based on the catastrophic 1918-1919 worldwide influenza epidemic. Antibiotics and immunizations should prevent a repeat of that disaster, but an appreciation of what happened then should help people understand why President Ford's advisors recommended a vigorous immunization program for the fall of 1976.

"Spanish influenza"

Experts disagree where the 1918-1919 influenza pandemic began. (The term *pandemic* is generally used to designate a severe type of influenza A with a worldwide distribution.) Some say it began in military camps in the eastern United States in February, 1918. It probably appeared in a number of locations, but an epidemic in Spain appears to have been the most extensive. For this reason, the worldwide epidemic which followed was frequently called "Spanish influenza."

Although most of these cases of flu were probably quite similar to present-day flu, it is revealing to look back on how it behaved in its most severe form. It began suddenly with a chilly feeling, headache, general aching, weakness, and dizziness. Often there would be shaking chills, with fever rapidly rising to 104 degrees or higher. There was a frightening feeling of tightness in the chest, which was soon followed by a cough productive of viscous sputum. Nose bleeds were common and often severe.

In some cases the patient seemed to be suffering from a rapidly progressive toxemia. Soon a violet cyanosis developed which was especially severe in the lips, but soon gave the patient the dusky hue of impending death. The respirations became rapid and frantic. The fever rose to 105 and 106 degrees. Death mercifully came within a couple of days after the onset.

Some developed pneumonia

In other cases, the initial onset was milder and the fever came down after

the first 24 hours. On about the fourth or fifth day, the cough got much worse. The clear viscous sputum became yellowish or yellowish-green. The fever rose again to 103 to 104 degrees and breathing was rapid and difficult.

The sputum developed a dirty sanguinous color, and as death approached was mixed with clotted blood. The initial influenza had been followed by a rapidly developing bacterial bronchopneumonia for which there was no antibiotic treatment.

In general, there were three waves in the epidemic. The first wave, in the spring of 1918, was mild, but affected nearly 50 percent of the populations in some locations. The death rate was only about .2 percent of those affected.

Second wave worst

The second and worst wave began in Europe in late August, and by the first week of October was full-blown throughout the world. It took two forms: the typical influenza with unusually severe inflammation of the lungs sometimes causing death in only two or three days; and typical influenza followed by bronchitis and bronchopneumonia. Those who survived the bronchopneumonia had a prolonged convalescence, and often did not recover for many months.

The third wave began in February, 1919, and lasted until the end of March. It frequently was mild, but there was a high incidence of complicating bronchitis and bronchopneumonia.

The worldwide death toll from the 1918-1919 pandemic has been estimated at over 20 million people. Roughly one percent of the world population was killed by influenza and its complications. Six million died in India and 548,000 civilians succumbed in the U.S. During the four autumn months of 1918, one of every four U.S. military personnel had influenza, one of every 24 developed pneumonia, and one of every 67 died.

In only a few months, influenza killed more people than had been killed in the four years of World War I. It has been ranked as the third most devastating epidemic ever to hit mankind. Only two plague epidemics in the Middle Ages killed a greater proportion of the population.

Not age-selective

The 1918-1919 pandemic was radically different from any previous one. It struck down the vigorous young and middle-aged. In the

O R Gaseous Diffusion Plant lists eight in supervisory posts



Bays



Cantrell



Chapman



Gaddis



Pitts



Pitts

Walker

Eight new supervisors have been named at the Oak Ridge Gaseous Diffusion Plant.

Thomas L. Bays Sr., Fabrication and Maintenance, was born in Artemus, Ky. He joined Union Carbide last year after working with the Bendix Corporation at the Kennedy Space Center in Florida. He attended Union College and also the Devry Technical Institute.

He and his wife, the former Katharine Ann Leddy, live at Route 1, Lenoir City. They have four children, Thomas L. Jr., Brenda, Joseph and Jane.

James H. Cantrell, Operations Division, is a native of Anderson County. Before joining Union Carbide 29 years ago, he served in the U.S. Air Force.

previous epidemics and those that have occurred since, influenza has taken its greatest toll in the old and those with chronic diseases.

In 1918 the highest death rate occurred in the 15-35-year age group. The age distribution of deaths was essentially the same throughout the world. Countries who had not been involved in the exhausting war fared just as badly as those who had not. The rich and poor were hit about equally. Although the complications of bronchitis and bronchopneumonia were more often fatal in those with poor nutrition or living in poor housing, the rapidly fatal disease struck down the vigorous, healthy and athletic just as mercilessly as the thin and frail.

The death rate caused by an epidemic is its best index of severity. However, in terms of days of disability for those who survived, the 1918-1919 pandemic clearly ranks the worst ever. Millions remained ill for months, and the toll in permanent damage to lungs cannot be estimated but must have been high.

(Part 2 will cover swine influenza and the reasons for the present concern about another dangerous influenza pandemic.)

He is married to the former Joan Evelyn Daniel, and they have two children, Pauline Hughes and Daniel. They live at 516 Woodlawn Drive, Clinton.

William C. Chapman, also in the Operations Division, is a native of Greenfield, Ohio. He has been at ORGDP for 31 years, and served in the U.S. Army during World War II.

Mrs. Chapman is the former Anna Rae Robbins. They live at 809 Sunset Drive, Kingston. They have three children, Bret, Bruce and Myra Sue (who works in the Computer Technology Center at ORGDP).

Jimmy T. Duncan, also in Operations, was born in Oak Ridge. He worked at Chevron Service Center before joining UCC three and one-half years ago.

He is married to the former Wanda Kaye Duncan, and they live at 111 Sleepy Hollow Road, Oliver Springs. He has three children, Tommy, Michael and Christopher.

John C. Gaddis Jr., Buildings and Grounds, was born in Knoxville. He worked with Rust Engineering before joining UCC 20 years ago.

Mrs. Gaddis is the former Wanda Edsell. The couple lives at 3405 Peachwood Road, Knoxville. They have two daughters, Karyn and Pamela, who are employed at ORGDP.

Orbit C. Pitts, Operations, was born in Oxford, Miss. He worked with DuPont before joining Union Carbide almost 32 years ago.

Mrs. Pitts is the former Louise Coleman, and they live at 2204 Fair Drive, Knoxville. They have three children, Cecile Marcum, Rose Bellamy and Joan Pitts.

Michael T. Somers, Operations, spent four years in the U.S. Air Force before joining UCC nine years ago. He was a machinist at ORNL and also worked in the Y-12 Plant. He is a native of Kenner, Ky.

Mrs. Somers is the former Lillian Napier, and they live at 102 West Sheridan Place, Oak Ridge. They have a daughter, Donna.

(Please turn to page eight)

Third lecture will be June 1

Hazel Henderson, co-director of the Princeton Center for Alternative Futures, Inc., will present the third in a series of six Oak Ridge Bicentennial Lectures on Technology and Society Tuesday, June 1, when she speaks on "Awaking from the Technological Trance." The lecture is scheduled for 8 p.m. at the American Museum of Atomic Energy in Oak Ridge.



H. Henderson

Mrs. Henderson is an author, lecturer and civic activist whose work has appeared in *The Nation*, *Saturday Review*, *National Observer*, and the *Harvard Business Review*. The Princeton Center for Alternative Futures, which she co-directs, is a small private conference center for "exploring alternative futures for industrial countries

in a planetary context of human interdependence."

She is a member of the National Research Council's Committee on Public Engineering Policy; a member of the Advisory Council of the Office of Technology Assessment of the U.S. Congress; and a member of the National Science Foundation's Advisory Committee on Research Applications Policy.

Mrs. Henderson's address marks the midpoint in the Bicentennial Lectures series, which began last month. The remaining lectures and their topics are: Roger Revelle, "Technology and the Poor," June 28; Emilio Daddario, "The Technologist in the Political Arena," September 21; and Harvey Brooks, "The Energy Problem," October 5.

The series is sponsored by Oak Ridge National Laboratory. There is no admission charge, and the public is invited.

Lynn Carpenter new manager of UCC industrial participation

Lynn J. Carpenter has been named manager for Union Carbide of the Industrial Participation Program, replacing Lowell L. McCauley, announced William J. Wilcox Jr., Technical Director of the Nuclear Division's production plants.

McCauley was named manager of administration for the recently established Office of Waste Isolation of the Nuclear Division.

The Industrial Participation Program has the responsibility at the Oak Ridge Gaseous Diffusion Plant for directing and administering the transfer of uranium enrichment technology to the Energy Research and Development Administration's IP Program contractors.

For the past four years at ORGDP, the transfer of technology to authorized companies for use in studies of enrichment plants has been effective because of the full coopera-



Lynn J. Carpenter

tion of operations, engineering, technical and support organization staffs.

Mrs. Carpenter, who joined Union Carbide in 1972, is a native of Atlanta. She attended Georgia Tech and holds a B.S. in chemistry and an M.S. in industrial engineering from the University of Tennessee. She has been a group leader in the Development Division at the Y-12 Plant and in the Materials Chemistry and Metallurgy section of the Separation Systems Division at ORGDP. She has also served as a technical recruiter for Union Carbide's Nuclear Division.

She and her husband, Donald, who works in Laboratory Development in Y-12, live at 120 Greenbriar Lane, Oak Ridge. She has been chairman of the Oak Ridge Human Resources Board for the past two years; is a former member of the board of directors of the Community Relations Council, and is now the Council's secretary; and is secretary of the Oak Ridge Toastmistress Club.

ORGDP supervisors

(Continued from page seven)

Bruce T. Walker, Fabrication and Maintenance, is a native of Knox County. He has been at ORGDP three years, and worked at ORNL as an electrician before transferring.

He and his wife, Helen, live at Route 22, Clayberry Drive, Knoxville. They have three children, Ronald, Donald and Bruce.

anniversaries

ORNL

30 YEARS

Robert D. Stulting, Engineering; William M. Gardner, Finance & Materials Division; Margaret E. Cleveland, Biology Division; Wanda Ellis, Information Division; Edd Bryant, Plant & Equipment Division; James R. Thomas, Operations Division; Paul R. Kuehn, Solid State Division; John W. Fleener, Operations Division;

Paul M. Lantz, Health Physics Division; Bruce T. Walters, Health Physics Division; George M. Adamson, Metals & Ceramics Division; Grover C. Cain, Central Management Offices; Johnnie Brown, Employee Relations Division; and Luther P. Jernigan, Operations Division (April 2).

In the April 1 issue, William Manuel was listed as having completed 30 years company service. This was an error: Otto F. Manuel, Plant & Equipment Division, completed 30 years service April 4.

25 YEARS

F. J. Muckenthaler, Jack Beams, Jerome B. Ruble, Jere W. Geer, James G. Morgan, Fred C. Maienschein, Robert H. Kernohan, Delia J. Fraley, Gladys J. Dodson, Dorothy K. Burkhalter, Harold J. Pemberton, Louis A. Lee, Melvin E. Laverne, Clarence K. Thomas and Joe K. Bair.

20 YEARS

Robin O. Williams, Frank Zupan, Robert E. Canning and James R. McIntosh.

Y-12 PLANT

30 YEARS

James A. McLain, Plant Protection Department; Elmo P. Taylor, A Wing, H-2 and F Area; Henry C. East, Materials Testing Support; Norman A. O'Neal, Chemical Services; Norman E. Morgan, Research Services; Hugh Barnette, Building Services Department; Herman G. Snyder, Superintendents Division;

Harry G. King Jr., Laboratory Operations; Preston J. Conerly, Materials Forming Department; and Charles R. Schmitt, Development Operations.

25 YEARS

John C. McCown (erroneously listed in April 15 issue), Coyal F. Fuqua, Clark L. Newman Jr., Jesse R. Donahue, Robert L. Ludwig, Earl A. Crow Jr., James E. Thompson Jr., Theira J. Flood, Della L. Welton, Steve E. Pelizzari, Auburn D. Casey, Keith Eastridge, William T. Coward, Charles M. Knowles, Hardin S. Lane, Joe K. Raper, John L. Young Sr. and Ulysses H. Ingle.

20 YEARS

Edward B. Lockhart, Norman E. Hoffman, David M. Finger, Robert E. Watkins and George F. Manning.

ORGDP

30 YEARS

John Farquharson, Instrumentation and Quality Assurance Development; Lee A. Smith Jr., Technical Evaluation Department; Jack D. Brannon, Machine Shoe Department; Lewis J. Thomas, Shop Services Department; George R. Jamieson, Instrumentation and Quality Assurance Department; and Charles W. Byrd, Shop Services Department.

Charles M. Douglas, Machine Shop Department; Edwin P. Warrington, Cascade Maintenance Department; and Warren R. Bradshaw, Cascade Maintenance Department.

25 YEARS

Fletcher Madison, Gerald C. Melton, Martha J. Bridges, Laura H. True, Alfred L. Cupp, Jesse W. Stapp and John A. Hall.

Marion H. Sproles, Lila G. Hamilton and Winnie P. Human.

20 YEARS

Glynn H. Kitchings, Carl E. Stooksbury, John W. Bowen and Robert H. Forde.

PADUCAH

25 YEARS

Velda R. Bartlett, Edith W. Garnett, James W. Thompson, Robert H. Hailey, Ted Cole and George C. Williamson.

20 YEARS

Thomas V. Grooms, Earl W. Richardson, Alton Rodgers Jr., Robert E. Jessing, Mary N. Nelson, Howard L. Ross, Fred H. Amonett, Hugh G. Coltharp, Charles M. Borden, Ronald E. Terrell, Loise L. Arnold, James K. Luton, Lee Floyd and Everett H. Tomlinson.

GENERAL STAFF

30 YEARS

W. Donald Cline, Law Department.

25 YEARS

Hubert C. Wright and Paul H. Riddle.



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NUCLEAR DIVISION

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